DOCUMENT RESUME

ED 215 209 CE 032 112

AUTHOR Shapiro, Karen Rosenkrantz
TITLE Informal and Formal Computer Training in a Corporate Setting.
PUB DATE 82
NOTE 10p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, NY, March 1982).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Access to Education; Autoinstructional Aids; Computer Assisted Instruction; *Computers; Educational Demand; Educational Methods; *Educational Needs; Educational Planning; Education Work Relationship; *Independent Study; Individual Needs; Information Needs; *Inservice Education; *Job Training; Nonformal Education; Postsecondary Education; Programed Instruction; Programed Instructional Materials; Student Educational Objectives
IDENTIFIERS *Bank of America; *Informal Education

ABSTRACT

Experiences with computer education at the Bank of America suggest that, when educating nontechnical people to use computers, formal learning environments are not as effective as informal learning environments. It has become increasingly necessary to use informal trainirg to educate the approximately 4,000 people who need the training because of the inability of the training staff to provide formal classes to all of them. At present, one-on-one training, manuals, on-line documentations, technical support programs, and video tape presentations are available for employee use; and self-paced computer-assisted instructional packages and self-paced print materials will soon be available for their use. Informal computer learning has prospered at the bank not only because of the inability of the training staff to demand, but also because potential users are geographically dispersed and would have to wait months for training; users are motivated to learn to use the computer for a specific task that would not be covered in a general presentation; and many of the people needing training are managers who would prefer to make their mistakes in private rather than be embarrassed in a class situation by lower level people who know more about computers. The bank plans to test the hypothesis that informal learning can be as effective as formal learning, as soon as materials are developed. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED215209

INFORMAL AND FORMAL COMPUTER TRAINING IN A CORPORATE SETTING

by

Karen Rosenkrantz Shapiro, Ph.D.

Consultant

BANK OF AMERICA

San Francisco

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Karen Shapiro

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

My suspicion is, when educating non-technical people to use computers, formal learning environments are not as effective as informal learning environments. I say "suspicion" because I am working currently in an environment -- a Fortune 500 company -- in which I have not yet been able to put my hypothesis to a test.

I work at the Bank of America in San Francisco. When I wrote the proposal for this paper this past summer, we had planned to have hundreds of students taking a self-paced print instructional course. As we have instructed hundreds of students in the same course as a stand up lecture, the comparison would have been a relatively simple exercise. Unfortunately, the self-paced course has not yet been implemented which renders a systematic comparison impossible at this time. However, I would like to use my time today to share with you my observations of our experiences with computer education gathered during the thirteen months I have been with the bank. I hope to return next year with data that support or refute my suspicion.

CE 032 112

The Organizational Environment

You have probably all heard of the Bank of America. It has approximately 85,000 employees located around the world. I work in a department at the bank's headquarters that provides access to and support of one of the largest in-house interactive computing services in any private corporation. Most of the presentations you will hear in this session are based on interactions with Micro computers. I work with a large, main frame computer -- an Amdahl V-8. People in approximately 700 departments of the bank, located in 22 countries around the world interact with the computer we support. These users own or lease approximately 1500 terminals now and plan to add another 1000 in the next 18 months. My department supplies the documentation. We buy, lease or write the 150 software products that are offered to users, we provide training, consulting in application development, hot lines for user support, and field offices in Manila, Hong Kong, Tokyo, Caracas, London, New York and Los Angeles.

Although the bank is a hierarchically structured organization with at least 8 levels of management between the President and many of our users, learning about computers not restricted to a particular level of staff. In fact, the acquisition of computer skills can offer a low level employee, such as a secretary, an ascending career path.

The Users

Currently there are about 4,000 individuals who log on to our system at least once a month, 1400 who log on daily and our computer system is now peaking at 300 simultaneous users. Most of our users are not working

in the bank's branches. We do not support the system that you see tellers using. We are primerily used for management information and decision support systems. People are using the computer to do financial analysis, data entry, and text processing. They are developing and accessing databases and then running reports off them. They use the computer to produce graphics and for communicating via electronic mail. There are also about 300 bona fide programmers on our system.

The Demand for Computer Training

Currently, our greatest problem is the rate of growth. We clearly have more people who want or need to be trained than we can train with our current training staff by traditional methods -- ie, in stand-up lecture classes. Our training staff consists of 7 people in San Francisco and about that many again in all of our field offices. According to a survey we conducted this past fall, users are expecting our classes to accomodate 4,100 people over the next 18 months. And that is for our current computer system. We are also bringing up a new system which will require all of the current 4000 users to be re-trained over the next 3-5 years.

Thus, we have been forced to consider training alternatives. And, in fact, people at the bank have not waited for us to suggest alternatives. Many more people are using the computer than have attended classes. Therefore, one can infer that most of their learning is informal.

Informal Computer Training at the Bank

Before suggesting the characteristics of people, computers, and the

corporate environment that lead me to suspect that informal learning environments are more effective than formal environments, I want to talk about what informal methods are available or under development at the bank.

- One-on-one Training -- Again referencing our survey, we asked other departments what their primary method for training new users of our computer was. Of the 442 departments responding to the survey, 126 of them (29%) said that one-on-one training was the primary way people learned to use the computer. Even more sophisticated users are apt to turn to each other for quick instruction. I cannot recall having observed any instance in which one user refused to assist another in the past 13 months.
- Manuals
- On-Line Documentation -- HELP Functions
- TRODS -- Technical support hot line; field support
- Video tape presentation in English and in Spanish

We have recently started using an IBM Computer-Assisted Instructional package and a self-paced print course, both as introductions to the new computing system we will introduce to users in June.

We are currently developing additional self-paced print materials which will be supplimented by video tape productions and have begun talks with several outside consultants who have developed their own user training techniques. One of these projects is called "Computer Tutor." It was developed by Joan Targ of Interactive Science Incorporated. The Computer Tutor approach trains one set of people who then train others, reinforcing their own learning as they teach. The process imposes form

the one-on-one method by providing the helper or tutor with a curriculum. The project is currently in place on the Junior High level in Palo Alto.

Another attempt to provide informal computer training was developed by Jan Bleil, formerly of Stanford University, Vice President in charge of Research and Development for the User Training Corporation. Jan uses an audio-digital technology which enables the learner to listen to an audio taped tutorial while watching the lesson on a computer terminal.

Organizational Factors

Informal computer learning has prospered at the bank despite the fact that my department has done little intentionally to foster its development. Several organizational factors have, I believe, contributed to its growth:

- Potential users are geographically dispersed. Telecommunication lines enable users to access the computer from 86 cities around the world. Users in many of these locations, such as Sidney, Australia, often have to wait as long as a year for one of our instructors to give them a class. They are forced to use other methods of computer learning.
- The size of our training staff has not grown as rapidly as the demand for computer instruction. Five of the classes we offer have waiting lists. Rather than wait until they can be instructed in the class room, users seek instruction when and where they can find it.
- Within a corporation, the majority of people who are trained need the computer skills to accomplish a specific task. Their learning is focused or structured by what they are required to

accomplish. The specific information they need will differ from what can be taught in a stand-up lecture directed at a general audience.

- Many of the people who are learning about computers in our environment are managers. The corporate hierarchy places managers above programmers. In a classroom situation, a manager may find himself or herself less qualified than people at a lower level in the hierarchy. This can be an awkward or embarrassing situation and some managers prefer to fight it out alone with a manual or a self-paced text where no one can see their errors.

Users' Experience

Because we are involved in training adults who, for the most part, did not grow up with computers, the background and exposure to computers of our learners varies widely. Our "learners" can be grouped into four categories:

- Novices -- people with no previous computer experience who may be intimidated by the machine. Once they overcome their fears, they need to learn how to operate a terminal, log on procedures, various concepts, such as files, editing, what environment they are in, and what they can do with it. About 42% of the people who attend our Introductory class fall into this category.
- Experienced users -- Individuals with prior experience on another system who need to learn the specifics of our operating system, editor and any other products they want to use.

- New product learners -- Individuals interested in learning what a specific product will do for them and how they can use it.
- Problem-solvers -- Individuals interested in solving particular "how-to" problems related either to the specifics of a product or operations.

- In a particular class, obviously, the instructor can proceed at only one pace. For some students it is too slow, for others too fast. Our need to be responsive to the user community and our limited training staff has inhibited our ability to make some of our classes -- such as the Introductory class -- homogeneous. Individuals who have had prior experience find this classroom presentation frustrating. A new introductory self-paced print course is now being developed which should be eliminate this mis-match.

Subject Matter Considerations

- Computer instruction is concerned with teaching concepts as well as skills. Learners seem to have an extremely limited capacity to absorb conceptual material in one sitting. Due to the other work responsibilities of bank employees, it has been most practical to schedule half or whole day classes. Yet most learners are saturated with new concepts long before the class day is over. Once they have passed the saturation level, additional imparted information is not assimilated. Informal learning environments enable them to pace themselves.
- The skills required of the user to operate and control interactions with the computer are acquired with practice.

Terminal sessions, which are an integral part of our "traditional," formal instruction, do contribute to the development of these skills but here again, the variety of skills required is broader than most indivioual can develop in a short period of time.

- Another advantage of the informal method is illuminated by what one of my colleagues refers to as the "time-critical" nature of computer learning. You need to know how to do something on the computer IMMEDIATELY when a problem or question arises. Time costs money on a computer and you cannot get your work done today by waiting until tomorrow's class or next month's class. You need to learn it now. Several resources assist the user. On-line help can facilitate the user's recall of a concept or command. Reference manuals appear to be used most by the novice and the most sophisticated users. And our TRODS afford some users the "informal instruction" needed. The TRODS are accessible by phone, on-line, or at our offices. The TRODs report that most of the users they hear from are the most recent students in our application development classes. Classroom instruction initiates the process but additional assistance is necessary as the users attempt to implement what was covered.

While I do hope to have cata in the near future to support my contention that informal learning environments can be more effective than formal approaches to computer learning in a corporate setting, one organizational factor could easily disprove this position. To learn about computers requires a time commitment on the part of the learner. When an individual leaves his or her depa ment to attend a class, at a minimum,

that person will be exposed to the instructional material. However, if the learner is expected to proceed through a self-paced course in his or her office during a normal work day, the exposure might never happen. Judging by my attempts to write this presentation at my desk, I can easily imagine all sorts of distractions and interruptions.